

PATENT SPECIFICATION

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DRAWINGS ATTACHED

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(54) GRAMOPHONE RECORD

(71) We, NEW PROMOTIONS LIMITED, of 110 New Bond Street, London, W.1., a British Company do hereby declare the invention for which we pray that a patent may be granted to us and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention relates to gramophone records.

It is an aim of this invention to provide a gramophone record which can be played to provided a rhythmical accompaniment for a musician playing a melody. The record may be played on a musical cueing device as described and claimed in our copending Application No; 45593/68 (Serial No. 1247161).

Accordingly, this invention provides, a gramophone record in which a plurality of concentric ring tracks each containing a recording of one or more bars of the same rhythm of a given chord form a circular chord band, and a plurality of concentric circular chord bands each having the same rhythm but of a different chord form a circular rhythm strip, the record being such as to contain a plurality of different concentric circular rhythm strips, and each rhythm strip being such that the bar of rhythm or one of the bars of rhythm in each ring track in that rhythm strip starts on a radial line.

There may be two bars of rhythm in each ring track of the ring tracks of at least one chord band. In the case of stereo records there may be twelve chord bands forming one rhythm strip and in the case of ordinary non-stereo records there may be twenty four chord bands forming one rhythm strip. In both cases, there may be nine rhythm strips.

As stated, a circular chord band is constituted by a plurality of concentric ring tracks each containing a recording of one or more bars of the same rhythm of a given chord. A plurality of concentric ring tracks for each chord band is required due to the difficulty of manufacturing a device (such as that described in our copending Application No.

45593/68) to play the record by means of alternative cartridges. Specifically, the gramophone record may be played back by a device having two play-back cartridges which move one at a time across the record towards and form the centre of the record and are dropped onto a predetermined chord band to play an appropriate bar or bars of rhythm. Theoretically, it is only necessary to have one ring track containing the recording of one or more bars of rhythm but in practice we have found that machines cannot be sufficiently accurately produced, at least at an acceptable cost, to ensure that a needle of a cartridge will always drop into such a single ring track. Accordingly, the records are produced with a plurality of ring tracks each containing the recording to one or more bars of rhythm of a given chord, this plurality of ring tracks forming a concentric circular chord band so that it is only necessary to drop the needle within the confines of the chord band. Typically, there are four or six ring tracks for each chord band.

Preferably, the bar of rhythm or one of the bars of rhythm in each ring track in all the rhythm strips starts on the same radial line. Thus, there is formed a radial or rhythm datum line across the record on which it is desirable for a musician to drop a record needle to ensure that the rhythmical accompaniment is in time with the melody. The musicians task of bringing in the appropriate rhythmical accompaniment at the correct time is facilitated by providing the device which plays the record with a visual indicator which flashes everytime a point on the rhythm data line passes underneath a record needle. A point on the turn-table may be marked so that one end of the rhythm data line can be placed adjacent this mark.

With a recording of a percussion instrument where the chord pitch is not critical, the tempo and rhythm of the record can be varied by adjusting the speed at which the record revolves on the turn-table as it is being played. The timing of the record never go out since the sound is recorded and

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each bar, at least in each rhythm strip, starts at the same time.

The records of the invention may be made by modifying the process of making conventional spiral records, the main modification being the removal of the worm drive used in making conventional records which produces the spiral form of the record track. For example, the record track cutter may be connected to an electric motor and a sound tape may be used having alternate and equal lengths of tape having sound and no sound. These lengths of tape are equivalent to the record making one revolution and, whilst the record is making a revolution over a blank length of tape, the cutter is raised, for example by a solenoid, and is moved slightly inwardly to take up a position ready to cut the next inward concentric ring track.

The invention will now be described by way of example with reference to the accompanying drawings in which:—

Figure 1 shows a part of a record in accordance with the invention;

Figure 2 is a perspective view of a cueing device suitable for playing the record shown in Figure 1; and

Figure 3 is a top view of the device shown in Figure 2.

In Figure 1, a record 1 is shown having a single ring track 3 containing one or more bars of the same rhythm. A plurality of identical ring tracks 3 make up a chord band 5a and a plurality of different chord bands 5a . . . 15a make up a rhythm strip 17, for example the waltz. All the bars of rhythm are arranged to start on a single radial which is the rhythm datum line 21.

Referring now to Figures 2 and 3, a cueing device 2 has a base 4 and a lid 6. The upper surface of the base 4 has a turn-table 8, the revolution speed of which can be varied by means of a variable speed control knob 10 which can be moved along an indicator panel 12 from a "slow" position at one end of the panel to a "fast" position at the other end of the panel. The knob 10 and panel 12 are situated on the front face 14 of the base 4 together with an "on/off" switch 16 and a cue light 18. The light 18 is worked in conjunction with an indicator marker 20 on the turntable 8 and an indicator switch 22 on the base 4.

For convenience and ease of manufacture, many of the controls forming part of the device 2 have been fixed to the lid 6. Thus, attached to the underside of the lid 6, are two cartridges 24 and 26 having needles 28 and 30 respectively. The cartridges are normally maintained in an upward inoperative position by means of electromagnets 32 and 34, one for each cartridge located on respective pick-up arms 33 and 35. The pick-up arms 33 and 35 are each supported on a respective cartridge rail 36 and 38 and are

operated by an operator depressing chord selector buttons 37. Each chord selector button 37 enables the device 2 to produce a different chord as will be explained more fully hereinafter.

Two rhythm selector rails 40 and 42 are provided for simultaneously moving both cartridges 24 and 26 to a predetermined position across the lid 6 when a rhythm selector 44 is rotated. As is apparent from Figure 3, the rhythm selector 44 engages with the rhythm selector rails 40 and 42 by means of a toothed wheel and ratchet.

The operation of the device 2 in playing the record 1 is as follows. When the device 2 is switched on, the turn-table 8 and record begin to revolve. This causes the indicator marker 20 to connect with the indicator switch 22 and to cause the light 18 to flash on momentarily as the connection is made. The light is arranged to flash at the precise moment when a musician should depress one of the chord selector buttons to cause a cartridge 24 or 26 to move to an appropriate position above a chord band. If one cartridge is already on the record, then it will obviously be the other cartridge which is moved by the said depression of the chord selector button. Before record play back is commenced, both cartridges will be in the inoperative position and one cartridge may then be biased to move before the other one.

When the chord selector button is fully depressed, the circuit to the electromagnet holding the cartridge 24 or 26 above the record is broken, the cartridge 24 or 26 being the one which is to be brought from the inoperative position to the operative position. The cartridge then drops and thus allows the cartridge needle to be located in one ring of a desired chord band. The chord selector button is maintained in the depressed state by continual pressure from an operator's finger, until it is desired to play a different chord whereupon the button is released by the operator and the cartridge is raised to the inoperative position by its electromagnet. Whilst the cartridge is being raised to its inoperative position, another chord button may be depressed to cause the other cartridge to come into operation, exactly in the manner indicated above, without there being any time lag in the production of the rhythmical accompaniment.

WHAT WE CLAIM IS:—

1. A gramophone record in which a plurality of concentric ring tracks each containing a recording of one or more bars of the same rhythm of a given chord form a circular chord band, and a plurality of concentric circular chord bands each having the same rhythm but of a different chord form a circular rhythm strip, the record being such as to contain a plurality of different con-

centric circular rhythm strips, and each rhythm strip being such that the bar of rhythm or one of the bars or rhythm in each ring track in that rhythm strip starts on a radial line.

5 2. A gramophone record according to claim 1 in which the bar of rhythm or one of the bars of rhythm in each ring track in all the rhythm strips start on the same radial line.

10 3. A gramophone record according to claim 1 or claim 2 in which there are two bars of rhythm in each ring track of the ring tracks in at least one chord band.

15 4. A gramophone record according to any one of the preceding claims in which twelve or twenty four chord bands form one rhythm strip.

5. A gramophone record according to any one of the preceding claims in which there are nine rhythm strips.

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6. A gramophone record according to any one of the preceding claims in which there are 4 to 6 ring tracks forming one chord band.

7. A gramophone record according to claim 1 substantially as herein described with reference to Figure 1.

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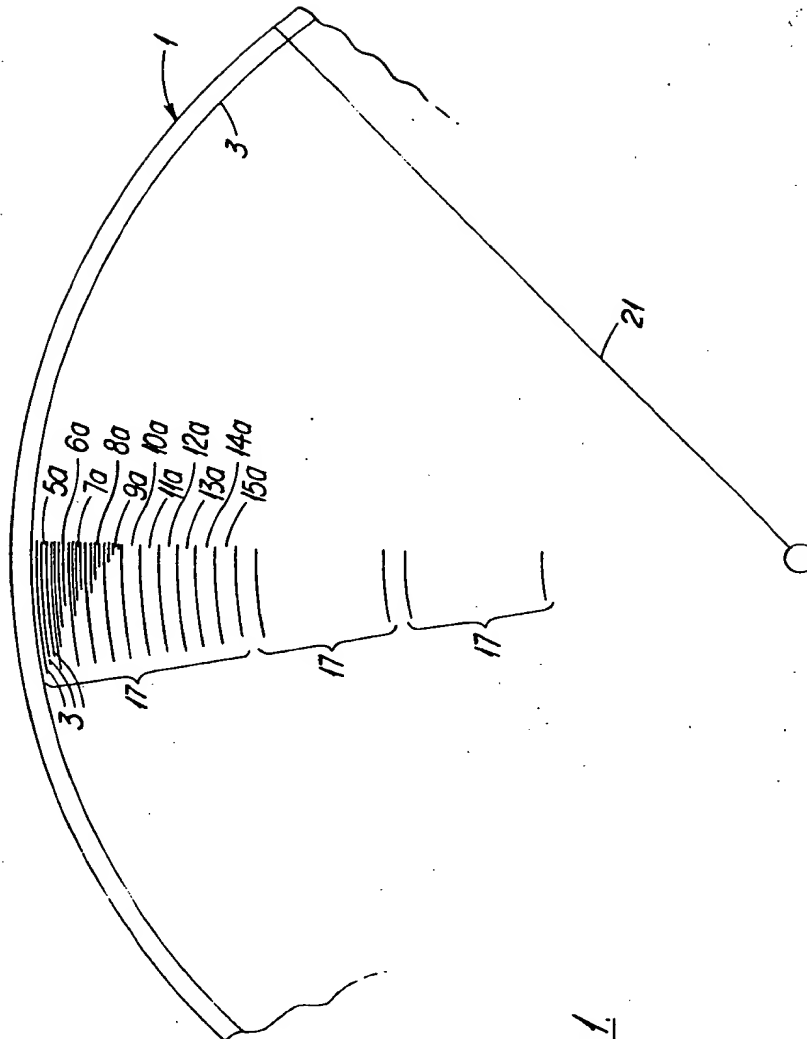
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COMPLETE SPECIFICATION

3 SHEETS

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the Original on a reduced scale

Sheet 1



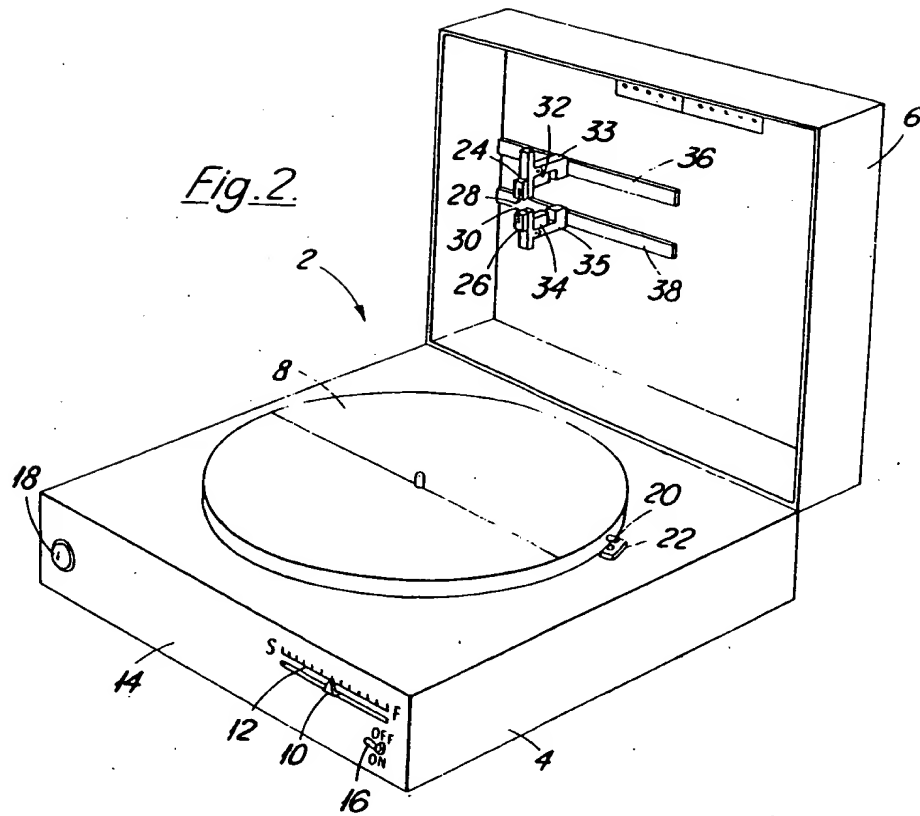
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COMPLETE SPECIFICATION

3 SHEETS

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Sheet 2



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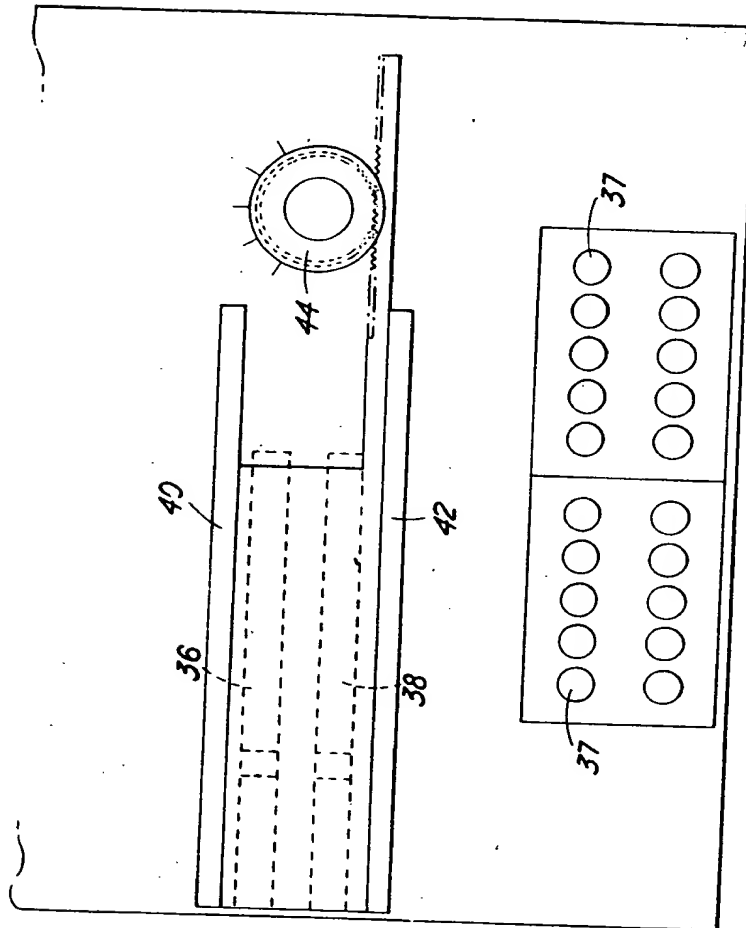


Fig. 3.

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